

# FLIGHT

*The*  
**AIRCRAFT  
ENGINEER  
&  
AIRSHIPS**

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport  
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## Flight

*The Aircraft Engineer and Airships*

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### DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

1924

- Oct. 30 .... Major J. S. Buchanan, A.F.R.Ae.S. (of the Technical Department, Air Ministry): "The R.Ae.C. Light Aeroplane Competitions," before R.Ae.S.
- Nov. 7 .... Col. N. T. Belaiew, C.B.: "Steel v. Lighter Alloys," before Inst.Ae.E.
- Nov. 13 .... Professor L. Bairstow, C.B.E., F.R.S., F.R.Ae.S. (Zaharoff Professor of Aeronautics, University of London): "Skin Friction."
- „ 27 .... Dr. G. C. Simpson, C.B.E., F.R.S. (Director, Meteorological Office): "Thunderstorms."
- Dec. 4 .... Colonel F. Searle, C.B.E., D.S.O. (Managing Director, Imperial Airways, Ltd.): "The Maintenance of Commercial Aircraft."
- „ 5-21 .... Paris Aero Show.
- „ 18 .... Mr. A. R. Watson Watt (Superintendent, Radio Research Board Station): "Recent Studies on Radiotelegraphic Atmospherics."

1925

- Feb. 5 .... Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., A.F.R.Ae.S.: "The Operation of Flying Boats in the Mediterranean."
- Feb. 19 .... Major R. V. Southwell, A.F.R.Ae.S. (Superintendent, Aerodynamics Department National Physical Laboratory): (Title to be announced later).
- Mar. 5 .... Lieut.-Col. C. B. Heald, C.B.E. (Medical Adviser to the Director of Civil Aviation, Air Ministry): "Some Medical Aspects of Air Transport."

## EDITORIAL COMMENT.



### An Interesting Winter

USUALLY the winter months are devoted, in aviation circles, to a review of the progress made during the past year, and to theoretical or practical considerations of how the science and practice of aviation can be further developed. A perusal of the fixtures lists of our two societies, the Royal Aeronautical Society and the Institution of Aeronautical Engineers, for 1924-25, appears to indicate that this year we may look forward to an uncommonly interesting winter and spring. The subjects and authors of papers to be read before these two societies are unusually promising, and it is to be hoped that both will attract vastly larger audiences than has been the case in past years. Both societies have done, and are doing, really good work, each in its own sphere, and although in the past there has occasionally been cause for criticism, the programmes now available indicate that a great improvement is in sight. The Royal Aeronautical Society has frequently, and not entirely groundlessly, been criticised for being too academic, while the Institution of Aeronautical Engineers has, perhaps, been prone to go to the other extreme and failed to attract the more "advanced" aeronautical people. There are indications, however, that both these shortcomings are about to be remedied, and that as a result both societies should have a wider appeal, with consequent gain in memberships. The complete fixtures lists were published in FLIGHT as follows: Royal Aeronautical Society, August 7, 1924; Institution of Aeronautical Engineers, October 2, 1924.

To take the Royal Aeronautical Society first, two interesting papers have already been read, while today, October 30, Major Buchanan, of the Technical Department of the Air Ministry, is reading a paper on the "Light 'Plane Competitions at Lympne." In view of the fact that the Air Ministry is taking the keenest interest in the light 'plane movement, this paper will doubtless be of more than ordinary value, and the meeting should be well attended. On November 13, Professor Bairstow will read a paper on "Skin Friction," and although the subject does, perhaps,

tend towards the class described as academic, it has a very direct bearing on practical aerodynamic design, and should, therefore, be of practical value as well.

As the distances over which our air lines operate increase the subject of meteorology becomes of greater and greater importance, and consequently the paper on "Thunderstorms," by Dr. Simpson, Director of the Meteorological Office (to be read on November 27), should be of considerable interest to those concerned with the operation of commercial air lines. The same applies, and to a considerably greater extent, to the next paper, "The Maintenance of Commercial Aircraft," to be read by Colonel Frank Searle, Managing Director of Imperial Airways, on December 4. Colonel Searle has had considerable experience of transport problems in other branches, and has by now also had time to become thoroughly familiar with the problems peculiar to air transport. His paper should, therefore, be of interest, more especially to aircraft designers, who have not always an opportunity of studying closely the conditions under which commercial machines are used.

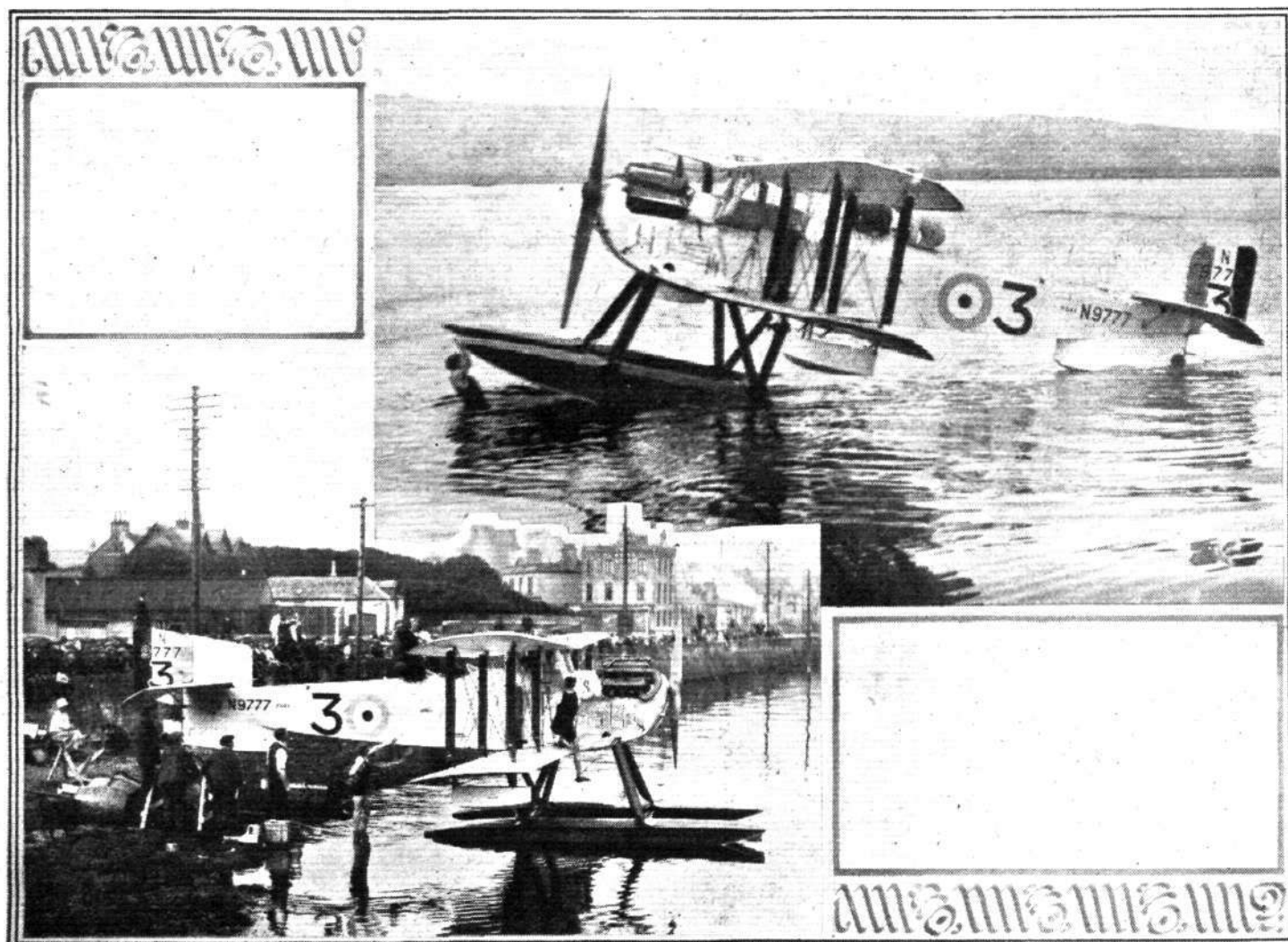
It is not proposed here to give a detailed reference to all the papers down on the programme, but special mention should be made of two. "The Operation of Flying Boats in the Mediterranean," by Air-Commodore Samson (February 5, 1925), and "Modern Zeppelin Airships," by Dr. Eckener of the Zeppelin Company (March 26).

Perhaps in some ways an even better programme has been arranged by the Institution of Aeronautical

Engineers. The fixtures list is too long to refer to in full, but some of the more outstanding papers may be mentioned. On November 7, Colonel Belaiew will read a paper on "Steel *versus* Lighter Alloys." November 21, "Graphical Methods of Aircraft Structural Design," by Dr. A. P. Thurston. December 12, "Notes on Seaplane Design," by Commander J. C. Hunsaker. January 9, 1925, "The History and Evolution of the Avro Training Machine," by Mr. R. J. Parrott. February 6, "Photo-Elastic Methods of Measuring Stress," by Professor Coker. February 20, "Flying in Australia," by Mr. Bert Hinkler. March 6, "The Advantages of Metal Construction," by M. Dewoitine, the famous French designer. April 24, "The Position of the Airship in Aerial Transport," by Commander Burney.

All these are papers by well-known specialists, and the Institution of Aeronautical Engineers is to be congratulated on having secured such representative and distinguished lecturers. From a very small beginning the Institution has gradually developed, and it has now reached a stage where it must be seriously considered by everyone interested in aviation.

Finally, mention should be made of the series of lectures to be given before the Cambridge University Aeronautical Society, a list of which is published elsewhere in this week's issue of *FLIGHT*. These also are of great interest, and altogether we can look forward to considerable contributions to the present general knowledge of subjects connected with aviation.



**AN INCIDENT IN THE KING'S CUP RACE:** Two views of the Fairey III-D seaplane (450 h.p. Napier "Lion" engine) at Stranraer, on the occasion of the last King's Cup Race, August 12. Above, bringing the seaplane ashore. Below, the crowd watching the refueling operations—note the "Shells" on the shore.



# THE INTERNATIONAL AIR RACES, DAYTON

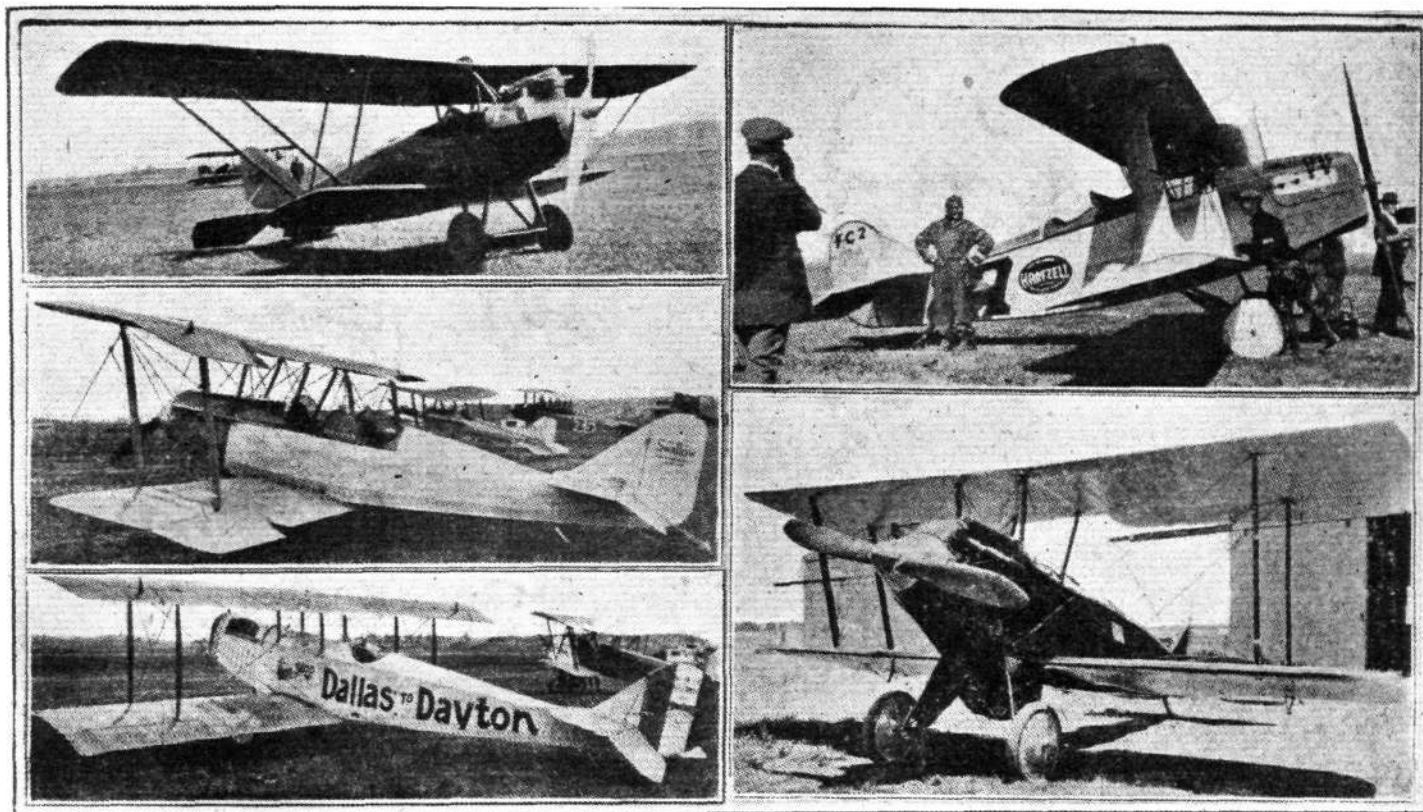
WE give below a brief report of America's big three-days' aviation meeting, which was held at Dayton, Ohio, on October 2, 3 and 4. Known as the "International Air Races," this annual aviation event is organized by the National Aeronautic Association of U.S.A., under the rules of the F.A.I., and during the three days of the meeting a number of races of varied character are held, the most important of which being the speed contest for the Pulitzer Trophy. Last year this meet was held at St. Louis, but this year Wilbur Wright Field, Dayton, was the scene of operations.

A preliminary event, known as the "On to Dayton" race, for the Dayton Chapter N.A.A. Trophy, took place immediately before the actual meeting. In this event, which was for civilian pilots only, the Trophy was awarded to the pilot obtaining the greatest number of marks for a flight to Dayton from a point not less than 200 miles (air line) away. Marks were awarded for the following: Average speed (max. 100 for 150 m.p.h.), distance covered (1 for each 10 miles above 500 miles from Dayton), passengers carried (10 per passenger, max. 100 marks), and engine h.p., at the rate of 4 cub. in.

rebuilt OX5 Canuck in which the wings had been modified for single bay truss. It was piloted by M. M. Merrill, who obtained 216.7 marks for a remarkable non-stop flight of 870 miles from Love Field, Dallas, Tex. Fourth and fifth prizes went respectively to Hans Hoyte and to W. A. Yackey, both flying Yackey OX5 sport 'planes from Chicago, a distance of 249 miles, and each carrying a passenger. E. L. Partridge obtained sixth place with a flight of 242 miles from Ashburn Field, on a Partridge Cabin 'plane with five passengers on board.

The last three competitors were as follows:—B. L. Rowe (Rowe Flyers) seventh, with 191 marks for a flight of 204 miles on a C.6-S.V.A., with one passenger, from Warren, Ohio; D. A. Askew, eighth, on a special OX 5 Canuck, with 190.5 marks for a flight from Lawton, Okla (880 miles); and A. E. Merriam on a Curtiss OXX 6-Swallow, with one passenger, for a flight from Wichita, Kan. (755 miles). All the machines in this event were fitted with Curtiss engines.

The first day of the meeting proper, October 2, commenced with the National Cash Register Trophy "free-for-all" race



**SOME MACHINES AT THE DAYTON INTERNATIONAL AIR RACES:** Left, reading from top to bottom, the Special C.6 Curtiss "Oriole," with clipped wings, the "New Swallow," and the "Canuck," also with clipped wings. Right, above, the Hartzell FC-1, and below the racing "Swallow."

displacement per h.p. (max. 200 for 10-h.p.—40 cub. in.—) and 5 marks deducted for each 40 cub. in. of displacement in excess of 10 h.p. This contest was open to any make or type of aircraft, and competitors could start any time after September 20, but had to land at Wilbur Wright Field before 12 o'clock midnight, on October 1. Thus, during the few days preceding the actual meeting a varied assortment of machines taking part in this contest arrived at Dayton from near and far. The first prize and Trophy was won by C. S. ("Casey") Jones, of the Curtiss Exhibition Co., on a special Curtiss C.6 "Oriole," with a score of 239 points and a distance flown of 233 miles (from Chanute Field, Rantoul, Ill.). "Casey" also won this event last year. The special C.6 "Oriole" differed from the standard type in that it had been converted into a one-and-a-half plane by discarding the top plane centre-section and clipping the lower wings considerably; the wings were braced by one pair of straight and one pair of sloping struts on each side of the fuselage. The engine was the 160 h.p. Curtiss C.6.

Second prize went to Charles Holman, who flew from Minot, N.D. (1,020 miles) with one stop at Minneapolis, on an OX5-Thomas Morse scout, and obtained 220 marks. Another "nondescript" machine obtained third place, this being a

for two-seater low-powered machines, having a total piston displacement of 510 cub. ins. or less, and carrying a total load of 340 lbs. in open cockpits. This event was won easily by Walter Lees, who flew the same Hartzell FC-1 biplane (Curtiss OX 5) which he used at last year's races. Second prize went to Perry Hutton, flying a Laird Swallow. Lees averaged 97.5 m.p.h. over the 90-mile course, while Hutton's average was 93.2 m.p.h. R. G. Page, of the U.S. Air Mail, won third place on a Yackey Sport 'plane with an average speed of 87.4 m.p.h., and fourth place went to E. A. Johnson, on a new Swallow, with an average of 87.2 m.p.h. A second Yackey Sport 'plane, flown by W. A. Yackey, was sixth with an average of 86 m.p.h. A Farman sport 'plane entered for this event was put out of action on the starting line by the collapse of its special "featherweight" chassis, fitted for the occasion.

The second event was another "free-for-all" race for the Central Labour Union Trophy, for two-three- and four-seater high-speed commercial 'planes (engine piston displacement, 800 cub. ins. and 340 lbs. load). "Casey" Jones and his one-and-a-half Curtiss Oriole came in first fully a lap ahead of the second man, who was J. C. Ray on another C.6 Oriole—the former averaging 125 m.p.h. and the latter 107.2 m.p.h.

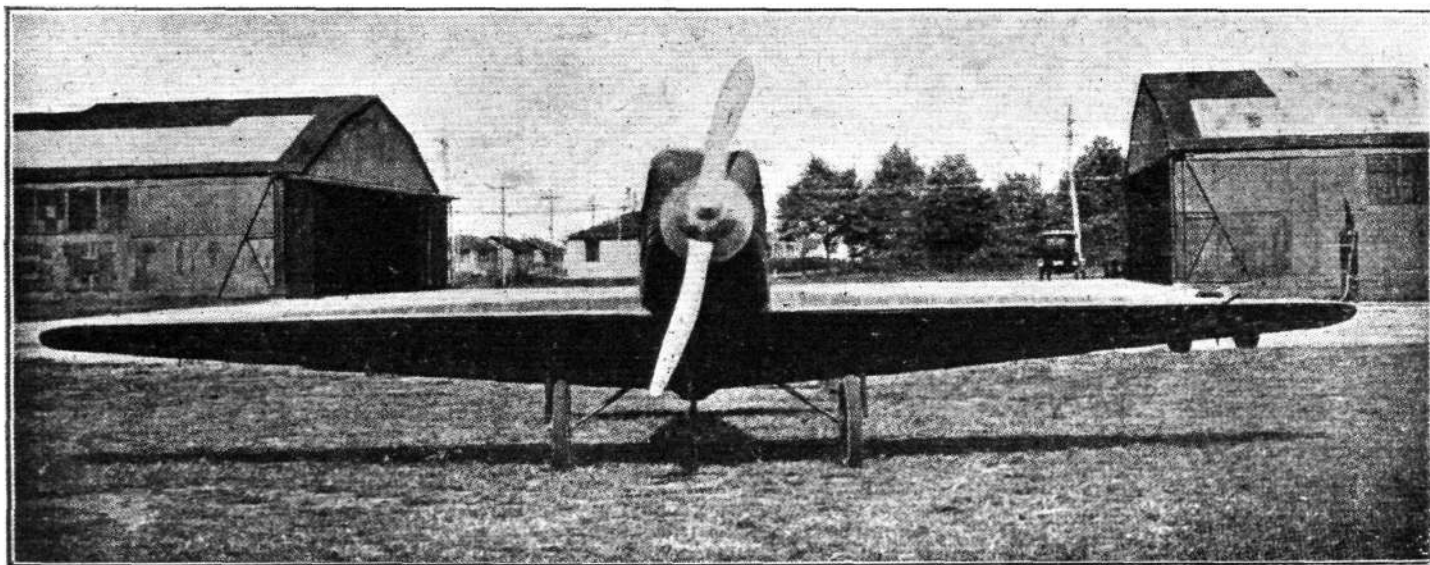
The third place was obtained by C. Caldwell on a Glenn Martin Commercial-70 biplane (200 h.p. E-4 Wright), with an average of 103.34 m.p.h. Lees, on the same Hartzell FC 1 with which he won the previous event, came in fourth with 98 m.p.h., and Perry Hutton on his new Laird Commercial was fifth with 92.7 m.p.h. Sixth and last place was obtained by W. A. Yackey on the Yackey Sport. There were several other entrants in this event, but they were forced out of the race by various causes.

By way of a diversion, some exhibition flying then took place, including sky-writing by Lieut. W. H. Brookley, an aerial combat between a squadron of observation 'planes from Wilbur Wright Field and a Pursuit squadron from Selfridge Field, a "tied-together" flight by three V.E.7's, demonstrations by two Sperry Messengers, and concluding with a fine exhibition of aerobatics by Capt. Burt Skeel on a Curtiss P.W.8 Pursuit 'plane.

After this the final event of the day took place. This was the Liberty Engine Builders' Trophy Race for two-seater corps observation machines, in which some 10 Liberty-D.H.'s participated in a more or less evenly matched speed contest over 12 laps of the course—about 180 miles. Naturally, some pretty flying was witnessed in this event, which was won by Lieut. D. G. Duke, who shot ahead during the first lap and maintained the lead throughout, averaging 130.43 m.p.h. Lieut. A. Simonin was second with 128 m.p.h., and Lieut. C. A. Cover third with 124.13 m.p.h. One of the competitors, Lieut. C. Steinmetz, was forced down by

Country Club of Detroit Trophy race, which was open to commercial machines having an average air speed greater than 80 m.p.h., a total piston displacement of 800 cubic ins., and carrying at least two persons. Cockpits had to be left open, but cabin 'planes were allowed. Actually this event comprised two events—a speed race, and an efficiency contest. In the former case the number of passengers carried was disregarded, and only the elapsed time counted, while in the latter case the winner was determined by dividing the number of passengers (theoretically) and pilot in pounds by the horse-power and multiplying the product by the speed over the course (eight laps = 120 miles). Each event won prizes, but the trophy itself went to the entrant scoring the highest total of marks in both events. This race proved an exciting contest, the outstanding feature being the extraordinarily hard luck of "Casey" Jones on his clipped-wing "Oriole," who was "flying away" with the speed event until just within sight of the finish. He covered the first lap at 112 m.p.h., and then gradually increased his speed to 122 m.p.h. at the seventh lap. Then fate intervened, for as he approached the finishing line the engine suddenly stopped dead, and he had to make a hurried descent, which he accomplished successfully. It appears that a 20-lb. bag of ballast shifted its position and kindly opened the lower petcock (draining) of the petrol tank, thereby distributing petrol evenly round the course until there was none left to bring "Casey" home to victory!

First prize in the speed section therefore went to Basil



**THE DAYTON INTERNATIONAL AIR RACES:** The principal event of this big American three-day aviation meeting was the speed contest for the Pulitzer Trophy. Above is a front view of the 1922 Verville-Sperry (500 h.p. Curtiss D-12) cantilever monoplane which won this year's race with a speed of 215.72 m.p.h.

engine trouble in the seventh lap—he had, however, been disqualified for fouling the pylon on the first lap, so he was out of the race in any case. Another competitor, Lieut. B. Bobzien, was also disqualified for a similar reason.

Before the day's meeting was brought to a close one or two other unofficial events took place, by way of a finale. Lieut. J. A. Macready created a new weight and altitude record by climbing a Curtiss bomber to 17,000 ft. with a load of 3,300 lbs.—the flight being officially observed. Then the Stout all-metal cabin commercial 'plane arrived from Detroit, piloted by Eddie Hamilton, with a full load of passengers.

The second day of the meeting opened with a contest for models for the Mulvihill Trophy. Unfortunately, a very high wind interfered with this event, and resulted in many "crashes." In spite of this, however, several excellent flights were accomplished and new world's duration and distance records were made. The Mulvihill contest was, therefore, postponed until later in the day, when competitors had a better chance of demonstrating their models—what was left of them. The results of this contest were:—1st, Robert Jaros, 10 mins. 42 secs. (in the morning the same model flew 1½ miles and remained aloft for 10 mins. 13 secs.); 2nd, Paul Shifter, 3 mins. 20 secs.; 3rd, W. E. Schweitzer, 3 mins. 9 secs.; 4th, E. T. Lange, 2 mins. 52 secs.; 5th, Walter Brock, 2 mins. 48 secs.; 6th, Bertram Pond, 2 mins. 33 secs.; 7th, F. Dampitz, 1 min. 42 secs.; 8th, Rappold, 1 min. 31 secs.

The second event for the day was considered to be the most interesting of all. This was the Aviation Town and

Rowe, on a C.6-SVA, with 111.4 m.p.h., and second place to J. C. Ray on his C.6 "Oriole." A stiff fight for third place was put up by W. L. Stultz on an Atlantic S.3 (Wright E4) who remained close to Ray throughout. C. Caldwell, on his Glenn Martin Commercial Martin 70, obtained fourth place with 102.3 m.p.h., and Walter Lees on the hardy Hartzell came in fifth. Sixth and seventh positions went respectively to Perry Hutton (Laird Commercial) and Walter Beach (New Swallow). Two machines dropped out of the contest—Al Johnson's New Swallow and Tex La Grove's Roger's Day—while there were several non-starters. H. Hartney, on a Bellanca CF (Yellow Aircab) was disqualified for fouling a pylon.

The first prize in the efficiency section went to W. H. Beach with 430 points, and his success was considered to be well deserved, for the New Swallow is certainly a machine of excellent performance.

Second prize for efficiency was won by Caldwell on his Martin Commercial-70, with a score of 388 points, while Basil Rowe's SVA gained him third place with a score of 265 points. Beach and Caldwell each carried the equivalent of three passengers, and Rowe carried the equivalent of two.

The third and last event on the programme was the annual "heavy weight" race for the Dayton Chamber of Commerce Trophy, open to civilian and military large capacity machines. This was a speed contest over 10 laps of the course, a distance of about 150 miles, and seven Martin Bombers participated. Although the skill displayed by the Army pilots in manoeuvring these heavy-weight veterans round the course left nothing to



be desired—the steep banking in many cases being very thrilling—it was felt by many of those present, who had witnessed the same performance on previous occasions, that this event was becoming decidedly out of date. In this year's race, too, there were not even any new types of machines. However, the race was won by Lieut. D. M. Myers (Aberdeen) on the same 4-wheeled Martin Bomber which won last year's event, the speed on the present occasion being 109.85 m.p.h. Incidentally, it may be of interest to note that this particular machine has more than 350,000 miles to its credit, and is now practically the same as it was six years ago, when it emerged from the Martin factory—a few broken ribs replaced and the resurfacing of the wings, now and again, being about the only reconditioning it has received during that time. All of the other six competitors completed the course, Lieut. C. F. Woolsey being second (107.98 m.p.h.), Lieut. H. McClellan third (104.59 m.p.h.), and Lieut. H. D. Smith fourth (103.25 m.p.h.).

After this, some excitement—not to say amusement—was caused by the appearance in the sky of a 1910 type Wright biplane, which, piloted by Lieut. J. Macready, flew past the grand stand and made its bow to Orville Wright and Miss Katherine Wright. Then the U.S. Army Airship TC5 came along with a Sperry Messenger biplane slung below the cabin, and when at an altitude of about 1,500 ft. the aeroplane was released, and its pilot, Lieut. F. C. Vinter, brought it safely to earth. Lieut. Harold Harris then ascended in the Barling Bomber—which is probably the largest aeroplane in the world—with a useful load of 4,000 kg. to an altitude of 4,000 ft.

After this the final event of the day was held, this being the 25-mile light 'plane race for the *Dayton Daily News* Trophy. J. M. Johnson won this event on a Driggs-Johnson parasol "limousine," fitted with a four-cylindered Henderson motor-cycle engine. He averaged 64 m.p.h. for the race. Second place was obtained by E. Dormoy on a parasol monoplane, of his own design, fitted with a four-cylindered Henderson engine. Dormoy's speed was 54 m.p.h. Other light 'planes in this event were a Mummert low wing monoplane (Harley-Davidson), and a Snyder biplane (Indian), and a Fasig-Turner biplane (Indian Chief). These, however, were put out of the race by engine trouble.

On the following day, October 4, the last day of the meeting, a second contest was held for light 'planes. This was a speed and efficiency race for the Dayton Bicycle Club and Engineers' Club Trophies, in which six machines lined up—the Mummert, the Johnson and Dormoy monoplanes, and the Heath and Fasig-Turner biplanes. Johnson made a forced landing on the second lap, and got away again after effecting repairs, but only to make another forced landing immediately after with petrol trouble. This was put right, and he started off again. The Mummert also landed owing to engine trouble, leaving the Dormoy alone in the field—the others having dropped out. Shortly after, however, the Dormoy gave up owing to the bumpy nature of the air. Then the Mummert started off again, and succeeded in completing the course, winning the first prize. Johnson came in a close second, and Dormoy was given the third prize, although he was

prevented from completing the course on account of the Pulitzer race being due to start.

Two other important events on this last day were the two big speed races for the Mitchell and Pulitzer Trophies. The former was a contest among pilots of the 1st Pursuit Group from Selfridge Field, and was by far the most exciting event of the meeting. In this 11 Curtiss PW8 Pursuit biplanes, all evenly matched, flew over four laps of a 50 km. (31 miles) course, a total distance of 200 km. (124 miles). Some fine piloting was witnessed in this race, and unusually good speed was made. Lieut. C. Bettis won this event with an average speed of 175.45 m.p.h., Lieut. D. F. Stace coming in close behind with 173.7 m.p.h., followed almost alongside by Lieut. T. K. Matthews with 173.32 m.p.h.

The other big event, the Pulitzer race, was, it must be admitted, a sorry affair, not only on account of its tragic opening, but for the fact that there were only four entries, and three of these were old machines. The four machines consisted of two Curtiss R.6 racers (which finished first and second in the 1922 race) piloted by Capt. Burt E. Skeel and Lieut. W. H. Brookley, a Verville-Sperry cantilever monoplane (520 Curtiss D12A) (last year's) piloted by Lieut. H. H. Mills, and a new Curtiss PW8A Pursuit 'plane (460 Curtiss D12) piloted by Lieut. Rex K. Stoner.

The four machines took off in the order given above, and climbing several hundred feet, dived into the course past the starting line in order to gain additional speed. Skeet's machine was just nearing the line, when it was seen suddenly to break up, and plunge into the ground in a vertical nosedive. It happened so quickly that it was impossible to tell exactly what happened. Brookley, who was flying close behind, stated that he saw a flash just before Skeet's machine fell. The latter was found deeply embedded in 10 ft. of soft ground beside a creek, and it was only after several hours' work that Skeet's body, badly mutilated, was recovered. Portions of the wreckage, including a large number of engine parts—cylinders, valve gear, etc.—were found within a radius of 300 ft. from where the machine fell. It is suggested that the propeller broke in the air, thus wrecking the engine (hence the "flash" and breaking away the top plane). This terrible accident, coming as it did at the start of the race, naturally caused some considerable anxiety for the remaining competitors, and there was great relief when the last of the machines landed safely.

The first prize and the Pulitzer Trophy were won by Mills on the Verville-Sperry, his average speed being 215.72 m.p.h. (28 m.p.h. slower than last year's winner). Brookley, undaunted by the fate of his companion, urged his mount to the utmost, and finished a good second, with 214.75 m.p.h., and before coming down at the end of the race, he executed a number of stunts on the machine. Stoner finished third with an average speed of 167.95 m.p.h.

After flights by several types of machines—including the Round the World Douglas Cruisers—past the grand stand, the Dayton International Aviation Meet was brought to a close by the bombing of a model city by a squadron of Martin Bombers.

### “Shenandoah” Completes 9,000-mile Tour

THE American-built rigid airship “Shenandoah,” which left Lakehurst air station on October 7 for an extended tour to the Pacific and back, set out from San Diego—where she arrived on October 10—on the return trip to Lakehurst on October 22. The “Shenandoah” first cruised along the whole length of the Pacific coast and back before she made the trans-continental journey to New Jersey. Lakehurst was safely reached at 4 a.m. on October 25, and the airship has thus completed about 9,000 miles in 18 days, during which she encountered “all sorts” of weather, and made altogether five landings, mooring masts being used on most of these occasions. Three of the masts employed were of entirely new types, and in the opinion of those following this flight the practicability of mooring masts for short stops for refuelling etc., has been conclusively demonstrated by the tests. Altogether, the “Shenandoah's” flight is considered by airship experts to be an extremely important achievement.

### A One Thousand Mile Flight in Java

A FINE one-day flight was made recently by a Dutch pilot out in Java, Dutch East Indies. Flight-Lieut. Nab, using a D.H.9 fitted with a Siddeley “Puma” engine, started off from the Antjol aerodrome (near Batavia) at 4.50 a.m., while it was still dark, and flew to Soerabaja, a distance of 780 km. (484 miles) in 6 hours, including a stop at Semarang, to take in fuel. At noon, he started off again for the

return journey, arriving at Batavia at 4.45 p.m. without landing *en route* for fuel. He thus covered 1,560 km. (nearly 1,000 miles) in 10 hrs. 45 mins. This is, we believe, the longest one-day flight made in a tropical country—Pelletier d'Oisy having covered 1,360 km. (806 miles) in one day during his recent Paris-Tokio flight.

### King of Italy to Review Italian Air Force

It is reported that the King of Italy, accompanied by Signor Mussolini, will review the Italian Air Force at Francesco Baracca Aerodrome, Centocelle, on November 4, when it is expected that about 300 machines will take part.

### Amsterdam-Batavia Flight

It is hoped that the three “Flying Dutchmen,” T. van der Hoop, M. H. van Weerden Poelman and M. van den Brocke, who left Amsterdam for Batavia (Dutch East Indies) on August 14 in a Rolls-Royce-Fokker F.7, and who crashed at Philippopolis, will be able very shortly to resume their flight. Thanks to an enthusiastic response to an appeal which was made for further funds, arrangements were made to dispatch immediately to Philippopolis mechanics with a new Rolls-Royce engine and other material. These left Amsterdam on October 21, and after a slight delay on the Serbo-Bulgarian frontier, when they were held up by the Customs authorities, arrived safely, we believe at the end of the week.

# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## COMMITTEE MEETING

A MEETING of the Committee was held on Wednesday, October 22, 1924, when there were present: Lieut.-Col. F. K. McClean, A.F.C., in the Chair; Lieut.-Col. M. O. Darby; Capt. D. G. Murray; Lieut.-Col. M. O'Gorman, C.B.; Mr. T. O. M. Sopwith; and the Secretary.

**Election of Members.**—The following new Members were elected:—

Pilot Officer W. C. Barnsley.  
Arthur Carpmael.  
Flying Officer R. F. Casey.  
Flying Officer Richard B. Fordan.  
Squadron-Leader J. B. Graham.  
Flying Officer G. W. Higgs.  
Lieut. R. C. Hovenden, R.N.  
Flying Officer C. H. Johnson.  
Flying Officer F. Larman.  
Flight-Lieut. H. E. Walker, M.C.  
N. C. S. Young.

**Racing Committee.**—Report of meetings of Racing Committee, held on September 16 and October 17, 1924, was received.

The following items were included in the Report: Arrangements for—

The Two-Seater Light Aeroplane Competitions.  
Air League Challenge Cup.

Grosvenor Challenge Cup.

Schneider Cup.

Racing Programme for 1925.

**Two-Seater Light Aeroplane Competitions.**—Letter from the Secretary of the Air Council to the Royal Aero Club was read as follows:—

"I am to request that you will convey to the Chairman and Members of the Organising Committee an expression of the Council's appreciation of the efficient manner in which the competitions were arranged and conducted."

**Joint Standing Committee.**—Royal Aero Club and the Society of British Aircraft Constructors.

The report of the Racing Committee on the questions to be discussed by the Joint Standing Committee of the R.Ae.C. and S.B.A.C. at their meeting on November 5 was received and approved.

**Light Aeroplane Clubs.**—The report of Col. Darby and the Secretary, the Club's representatives on the Air Ministry Committee, was received.

It was decided that the Royal Aero Club should accept the offer of the Air Council for the London District, and that full particulars should be issued to those interested as soon as the decision of the Air Council was received.

Offices: THE ROYAL AERO CLUB,

3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

## LIGHT 'PLANE AND GLIDER NOTES

FROM the announcement in the Official Notices of the Royal Aero Club above, it will be seen that the Club has decided to accept the offer of the Air Council concerning the formation of light 'plane clubs in the London district, and that the R.Ae.C. will issue full particulars to those interested as soon as the decision of the Air Council is received. It will be remembered that shortly after the Lympne competitions the Air Ministry announced that the matter of forming light 'plane clubs with Air Ministry assistance would have to be deferred until the engine question had been solved.

So FAR, to the best of our knowledge, no decision in the matter of engines has been made, and in the meantime further progress is definitely stopped, as clubs cannot be formed or machines ordered until the engine capacity that will be allowed has been settled.

THE Beardmore "Wee Bee I" monoplane, which obtained first prize in the Lympne competitions, has been exhibited at the Wembley exhibition for some time, where it has attracted great attention. At the end of this week it will, we understand, be transferred to Olympia, where it will be exhibited at the Motor-Cycle Show. Thus visitors will be able to see for themselves this wonderful little machine, which, fitted with a Bristol "Cherub" engine of 1,100 c.c. only, has a speed of more than 80 m.p.h., while carrying pilot and one passenger.

THE Bristol "Brownie" light monoplanes have many constructional features of interest, and it is therefore good news to learn that the general public will be afforded an opportunity of examining closely the details of one of these machines at the Motor-Cycle Show at Olympia. The Bristol "Cherub" engine fitted in so many machines at Lympne will also be on view, so that motor-cyclists who are thinking of becoming light 'plane pilots should make a point of visiting the stand and find out all about the Bristol machine. The "Brownie," of course, won second prize at Lympne.

WE have been requested by Mr. T. S. Keith, of Morar, 32, Shinfeld Road, Reading (telephone Reading 12), to state that he is anxious to get in touch with others living in the neighbourhood of Reading, who are interested in the formation of a Berkshire Light Aeroplane Club.

IN connection with the suggestion that light 'planes be employed as flying scale models of larger machines and used to supplement tests on small scale models in wind channels,

we have received from America some interesting photographs and a few particulars of a "Universal" light 'plane fuselage evolved by Mr. Denis Cashman, of 402, Edgewood Avenue, Dayton, Ohio, for carrying out flying tests on various wings, etc. The principle appears to be to provide on the fuselage fittings for the attachment of wings in almost any position, so that, for example, any particular wing can be tested in the "low," "normal," or "parasol" position and the effect on performance noted. It is stated that the change-over from one to the other can be effected in 30 mins.

MR. CASHMAN informs us that not only can these changes be effected, but angle of incidence, dihedral, sweep-back, etc., can also be varied in a very short time. Briefly the principle is outlined by the inventor as follows: "The wing section to be tested is built as a normal wing. Then a steel tube is put from root to tip, and this is secured to the spars and carries at a certain point a ball bearing and fitting to which is attached the braces from the fuselage. The root of the spar or steel tubing is carried in a ball-bearing in the fuselage, and suitable fittings on the inside of the fuselage are used to adjust the incidence of the wings. Adjustments on the braces where they attach to the fuselage allow the wings to be set at any position, dihedral, kathedral, etc."

To British eyes it would appear that the bracing arrangement shown in the photographs is inadequate, there being apparently no provision for resisting torque at the outer, single-point, support of the wing. We should have thought that reversing the wing struts so that the single point where the struts meet came on the fuselage would have been better. Our correspondent states that the wing span of the machine illustrated is 22 ft., and that the engine is of 74 cu. ins. (1,214 c.c.) capacity.

THE American races for light 'planes at the Dayton meeting do not seem to have been an unqualified success. As in the early days of the Lympne meeting, the trouble was engines. Two events for light 'planes were scheduled, the first a 25 miles' speed and climb race for the *Dayton Daily News Trophy* and the second a "speed and efficiency" race of 50 miles for the Dayton Bicycle Club and the Engineers' Club Trophies. Nine machines had been entered, six took the air, and three finished the course. The former race was won by Johnson on the Driggs-Johnson "Jimmie" monoplane with four-cylinder Henderson engine, and the second, the "speed and efficiency" trial, by Mummert on his low-wing monoplane

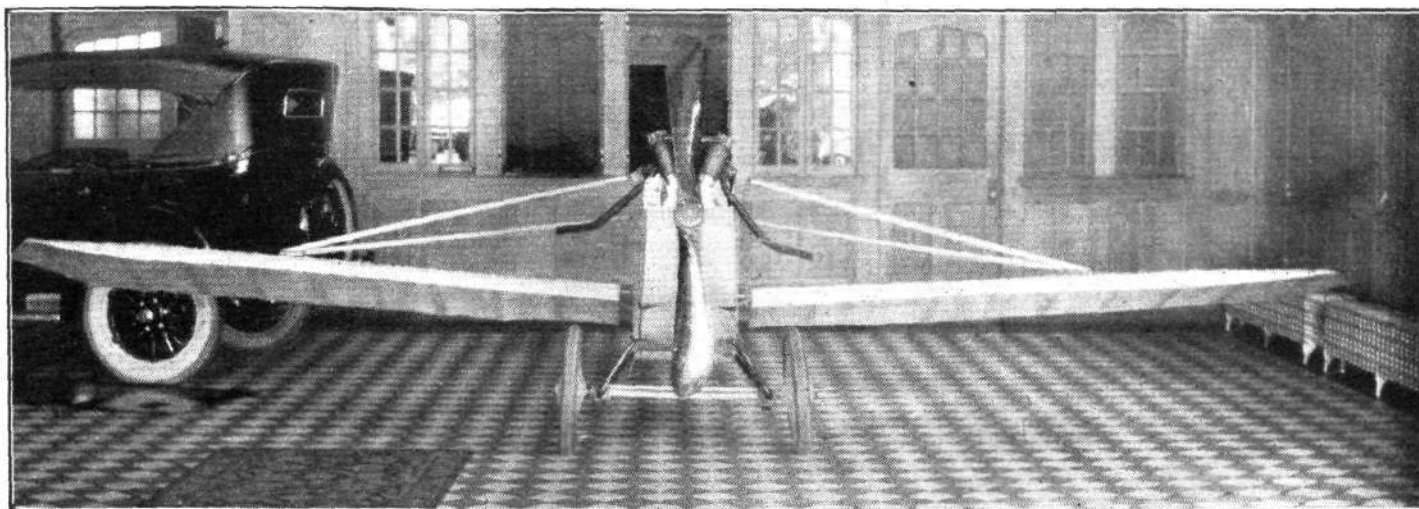


with vee type 74 cu. ins. (1,214 c.c.) capacity motor-cycle engine.

\* \* \*

THE following brief extracts from a report of the competitions by Mr. E. T. Allen, Light 'Plane Editor of our American contemporary *Aviation*, appear to give all of the story that it is necessary to know. Speaking of the race for the *Dayton Daily News* Trophy, Mr. Allen writes: "When the gun was fired, Johnson was given the signal to start. The machine accelerated quickly, left the ground at about 40 m.p.h., and

race for light 'planes. Six were lined up ready for the starter's gun, the seventh having crashed the day before. Johnson, Dormoy, and Mummert got off as before in the three monoplanes. Heath crashed on take off in bumpy air, and Dack flying the Fasig-Turner biplane did not get his Indian engine operating properly. Johnson's first lap was recorded at an average of 50 m.p.h. Dormoy came second at 40, and Mummert, third at 38 m.p.h. On the second lap, however, Johnson made a forced landing on account of a stoppage in the gas line. In the meanwhile, Mummert had landed for minor motor repairs,

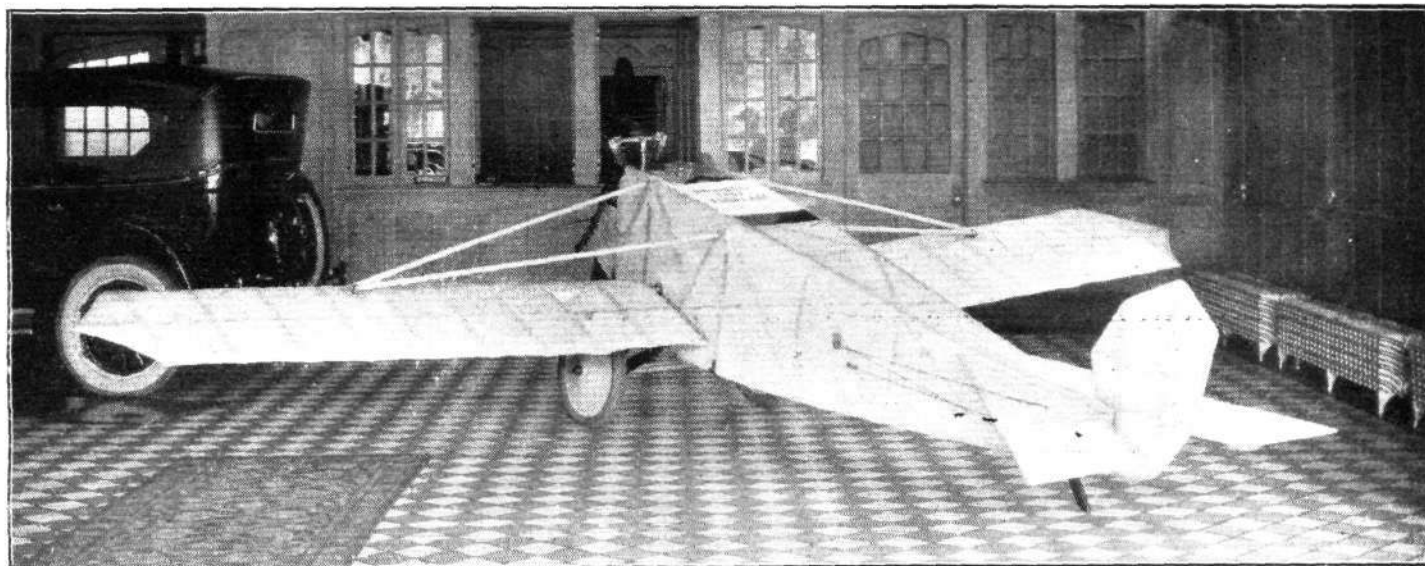


A "Universal" fuselage for testing light 'plane wings in flight. Front view.

climbed easily. 'Jimmie' rounded the pylon in the best Pulitzer style, and was off on the climb to the 500 ft. balloon 2 miles distant. The climb was apparently no effort at all for the little ship, and its speed on the straight away was very good.

"The next signal started Mr. Dormoy's parasol monoplane. His four-cylinder engine hummed confidently and lifted the 425 lb. machine off the ground at a very low air speed. The high speed, however, was noticeably less than Johnson's, but the climb did not seem to tax the engine severely. On

and had taxied up to the line, leaving Dormoy a clear field. Then, to the chagrin of the light 'plane enthusiasts, Dormoy, himself, cut back from the main pylon and landed close to the timers' stand. Ten minutes after the start of the race there was not a 'plane in the air! But our hopes rose as we saw Mummert take off again. And they kept high as he made lap after lap with as great ease as a Vought. When he completed the course and was announced winner of the first prize we were all very happy. Johnson came in a close second, and Dormoy was given third prize, although he was



Three-quarter rear view of the "Universal" light 'plane fuselage, showing a set of wings mounted for test. The wing attachments are unusual and appear open to criticism.

the third signal the Mummert low-wing monoplane took off, followed closely by the Snyder biplane and the Fasig-Turner biplane, all three with 74 cub. in. V-type motor-cycle engines. The Fasig machine had engine failure right at the start, and Snyder's Indian stopped on the first lap. A forced landing on very bad ground put an end to the hopes of Snyder, who has had his little ship ready for a race since 1920. Mummert's Harley-Davidson seemed quite good for the first two laps, but then he landed with carburetor trouble. Honours easily went to Johnson, with Dormoy second."

\* \* \*

"On the next day was scheduled a 'speed and efficiency'

not allowed to complete the race on account of the imminent Pulitzer event."

\* \* \*

JUDGING by this report, the American light 'plane meeting cannot be said to have been very encouraging, but at any rate a start has been made, and we are sure our readers will join us in wishing our American fellow light-planeists (Oh) better luck next time. We, on this side, have also had our little troubles, although we do seem to have got rather farther than they have. At any rate nine out of 14 machines completed the 100 miles at full throttle in the Grosvenor Cup race.

# THE NAPIER AERO ENGINES

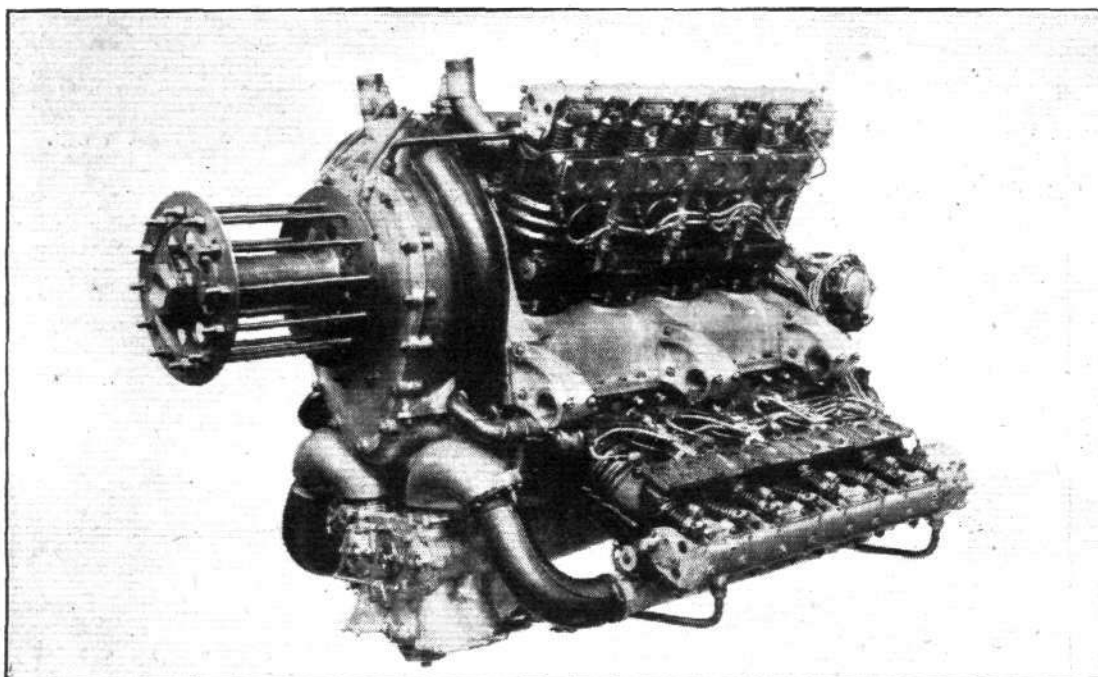
## Some Impressions of their Manufacture

"How is it that aero engines are so expensive?" is a question often asked by those not intimately in touch with aviation matters, and even occasionally by people with a fair knowledge of aeroplanes. On the face of it certainly there is some excuse for considering aero engines expensive. What is often overlooked is the fact that not only are the majority of aero engines in use at the present time of high power, but that the care bestowed upon their construction is such as to have no parallel in other branches of engineering. As a matter of fact, considering that only the very best materials are employed, and that even so there is a large percentage of "scrap," the modern aero engine is not really unduly expensive, certainly not on a cost per horse-power basis. It should be realised that weight is an all-important consideration, and that consequently high-grade materials are essential if the requisite factor of safety, or, in other words, reliability, is to be attained.

A short time ago we had the privilege of spending a day at the works of D. Napier and Son, Ltd., at Acton, and of inspecting the numerous engines passing through the various processes of manufacture and testing. We must confess that we came away very impressed, and that we marvelled

producing a 1,000 h.p. engine. Looking at the batch one receives the impression that there are enough cylinders for several engines, and if one begins to think the matter over, and to realise that there are, for example, four valves per cylinder, or a total of 64 in one engine, the magnitude of the work, quite apart from the original work of designing the engine, becomes evident. Much the same applies to other components, although the number of valves is, perhaps, the most impressive.

So rigid is the Napier system of testing, inspecting and record-keeping that it is no exaggeration to say that the "pedigree" of practically every single part that goes into an engine is available. Thus if, for instance, a connecting-rod should fail, it is possible for the manufacturers to look up its history from the time it arrived at the works in the rough state to the time it was put into an engine, or, rather, into that particular engine, for a record is kept of the parts which are used in every engine, and the engine itself is numbered. It is literally true that a particular connecting-rod can be traced in this manner. On the rough forging of each connecting-rod is a projection which is cut off and sent to the laboratory before any work is done on the connect-



THE NAPIER "CUB" 1,000 H.P. AERO ENGINE : Three-quarter front view.

not that aero engines are as expensive as they are, but that they can be produced at a price which is at all commercially possible. The inspection, treatment, re-inspection, machining and so forth are more typical of the laboratory than of the workshop; yet several engines are turned out every day, and the huge works are devoted almost entirely to the manufacture of aero engines, although needless to say a considerable amount of motor-car work is also being carried out.

It is not proposed in these notes to attempt to give a detailed description of the Napier engines, as the general design of the "Lion" and "Cub" is already fairly familiar to readers of *FLIGHT*. Nor does space permit of giving a thorough explanation of the details of the work of manufacturing the engines. We can at best only hope to record a few impressions gathered during our visit, and trust that these may serve to explain in some measure the reasons for the popularity already attained by the Napier "Lion," and the promise of similar success in the case of its "big brother," the 1,000 h.p. "Cub." At the same time we are pleased to be able to place before our readers this week photographs of certain component parts of the 1,000 h.p. Napier "Cub," which have not previously been published, as well as a three-quarter front view of the latest type "Cub" complete.

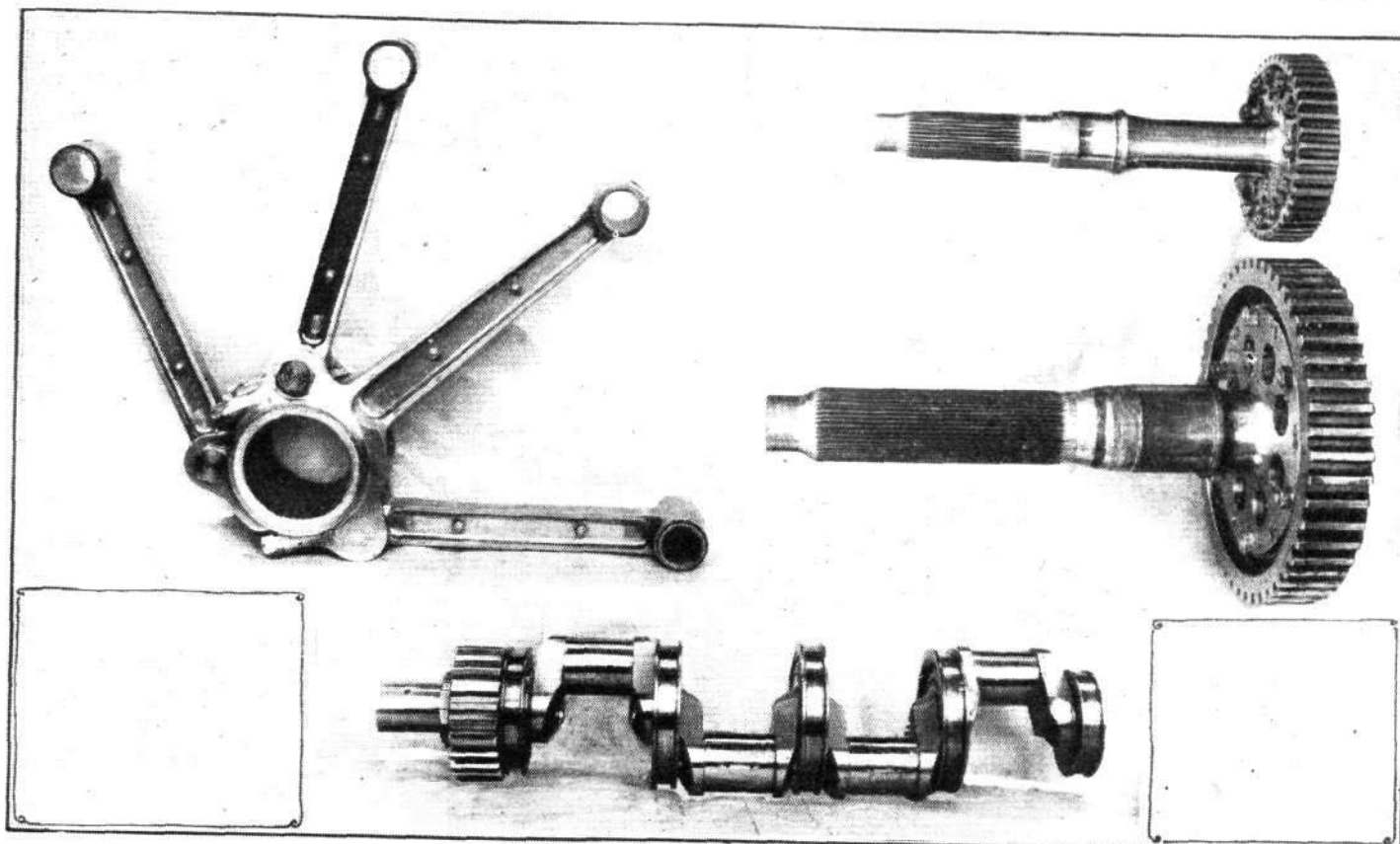
The photograph showing a batch of cylinders of one engine serves excellently in giving an idea of the work involved in

ing-rod. This piece is tested for hardness, etc., and if it fails to come up to the standard that particular connecting-rod is never manufactured. It is not, it will be seen, even a matter of testing a certain number of samples out of a batch, but of testing a piece out of every individual rod. This does not, of course, apply to connecting-rods only, but to the majority of the component parts of an engine, samples being taken from nearly every part before manufacture, and tests carried out on the part during and after manufacture. Everything that is humanly possible is done to ensure that nothing which is not quite perfect is allowed to go into an engine. Many other examples of the scrupulous care taken during the manufacture of a Napier engine might be quoted.

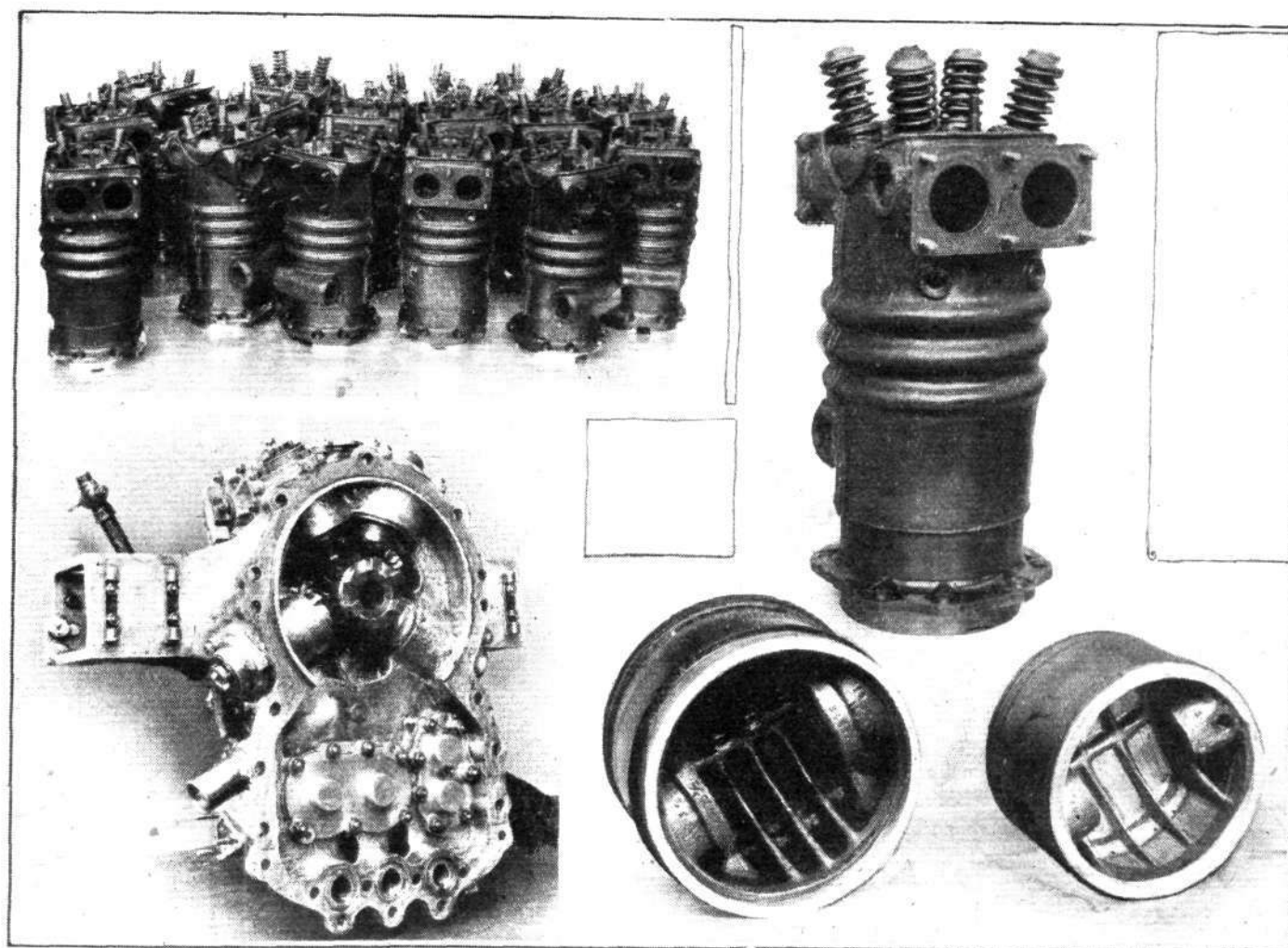
Reference has already been made to the valves. In this connection it is of interest to note that every valve spring is tested for deflection before being put into the engine. It might have been thought that valve springs of certain dimensions, made from a certain specified material and manufactured in a certain way, would be near enough alike to allow of taking a few samples out of a batch and subject them to test. At the Napier works, however, every valve spring is tested for deflection before being fitted.

As an instance of the care taken in such matters as reduction gears, for example, we may mention that paired wheels are used: that is to say, two particular wheels are matched, and are not allowed to be exchanged for others. To show the





THE NAPIER "CUB": A few details. On the left a connecting-rod assembly. The connecting-rod on the left is, of course, placed at the wrong angle in the photograph and should project radially, while that on the right is also out of line. The right-hand photograph gives a comparison between the propeller-shafts of the "Lion" and "Cub" engines, while below is the crankshaft of the "Cub."



THE NAPIER "CUB": The photograph in the upper left-hand corner shows the cylinders of one engine. On the right is a larger view of a cylinder, and, below, two pistons, one of a "Cub" and one of a "Lion." The photograph in the lower left-hand corner shows the back cover which houses the drives for inclined shafts, pumps, etc.

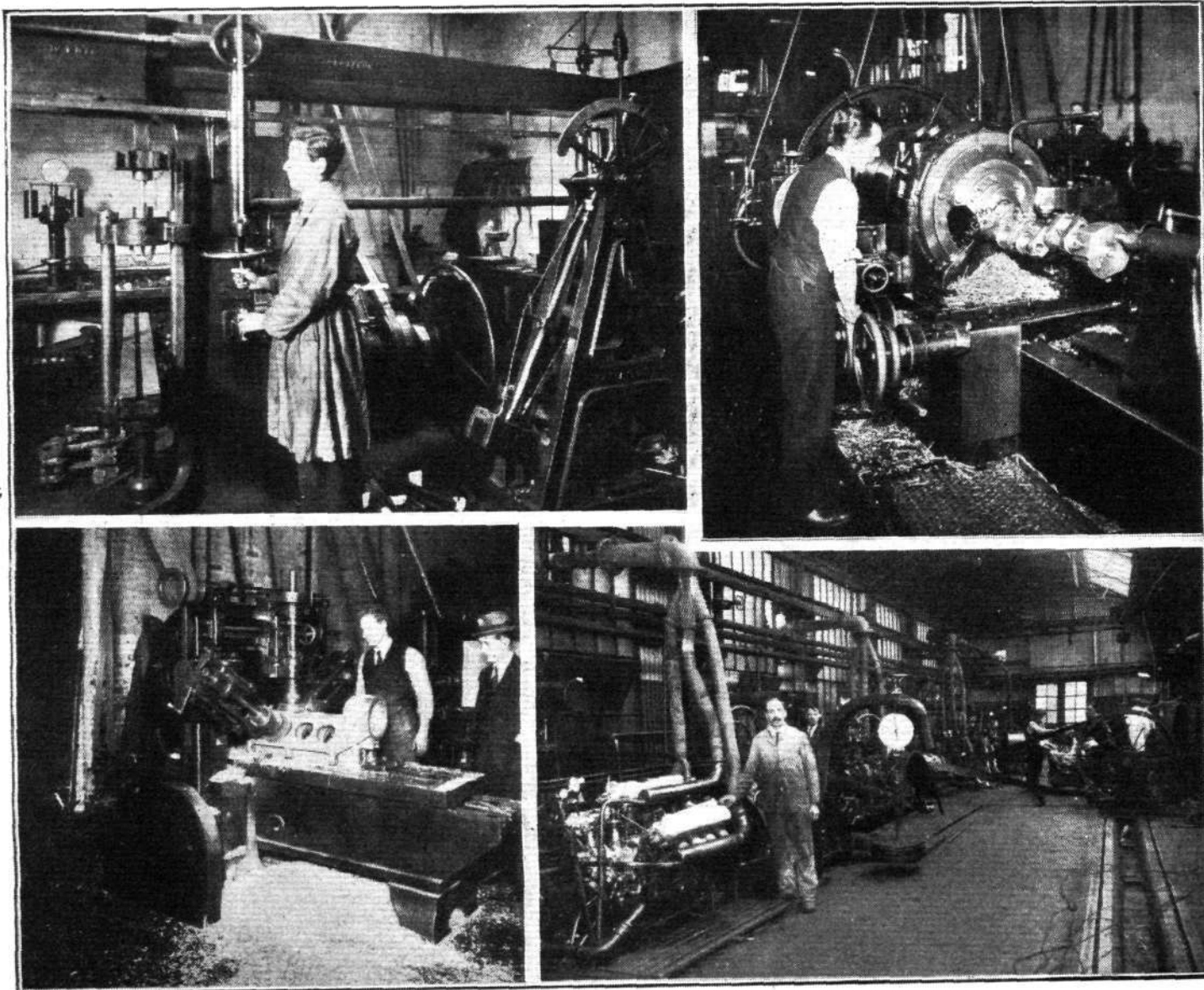
accuracy demanded, the amount of "back-lash" allowed in the reduction gears of a Napier "Lion" is no more than 0.004 of an inch, and the matched wheels are tested for back-lash by special instruments. Before being mounted in an engine each pair of wheels is "run-in" on a special machine until working smoothly, yet with no more than the 4/1,000 in. play permitted. As in the case of connecting-rods, the gear wheels are subjected in the laboratory to Izod, Brinell and scleroscope tests, and a record is kept of each pair for future reference. Not only mechanical tests are carried out, but samples of the steel are subjected to chemical tests in another section of the laboratory.

In spite of the use of the highest grade materials the amount of scrap is very great. For instance, we saw a number of crank-cases on a scrap heap, and out of curiosity we examined one to see what was the reason for its presence in this undignified company. As far as we were able to determine, there was nothing the matter with the crank-case except a small blow hole in the casting. This was in a position where it could scarcely have weakened the crank-case at all, but rather than run any risk the whole crank-case was scrapped, although a considerable amount of machining had been done on it before the defect was discovered. We mention this example, not because the percentage of scrap in crank-cases is exceptionally large, but because it illustrates the lengths to which the manufacturers of the Napier engines are prepared to go to ensure perfection. As a matter of fact, the Napier crank-cases are extremely well cast, and the majority of scrapped parts might easily be made serviceable, if this were not against Napier principles. As it is they are sent back to be melted down.

It is almost superfluous to state that the degree of accuracy demanded could not be attained, in spite of the rigid system of inspection, except by the use of very special machinery, reducing the majority of operations to processes of almost mathematical exactness. Certain finishing operations necessarily have to be carried out by hand, but in many cases the parts leave the machines in a state requiring no further work on them.

One type of machine which we had not previously seen so extensively employed was used for "broaching" (instead of boring) circular sections, such as big ends of master connecting-rods, etc., and also for serrated sections and for the splines of propeller-shafts. With this machine the special tool is drawn instead of pushed through the work, the tool tapering progressively so as to reach its maximum diameter at the rear end only, thus leaving the work completed and to exactly the correct size. We believe tools of a very similar nature are employed in the manufacture of rifles, but their use in aero engine manufacture is far from general. We were informed that very great accuracy can be obtained in this manner, and quite a number of these machines were seen in operation at the Napier works.

Special gear-cutting machinery was also noticed, and, incidentally, it may be mentioned that the large wheels of the reduction gears, to which reference has already been made, are ground to size. So also are the cylinders, which leave the machines with a surface like a mirror, and look as if they had been polished rather than ground. The top of crank-cases is ground on machines specially built for the purpose. One of these is illustrated by a photograph. It will be seen that the three spindles are arranged to lie in the



IN THE NAPIER FACTORY AT ACTON : Top left : A view in the laboratory, showing tensile, Izod and Brinell testing machines. Samples cut from the various components are thoroughly tested and a record kept of their characteristics. Right : Machining a crankshaft. Bottom left : The "Lion" crank-case has its surfaces ground true on a special machine which grinds the three faces in one operation. Right : A view in the test house.



planes of the three banks of cylinders of a "Lion" so that the resulting faces are at right angles to the centre lines of the cylinders. In spite of the accuracy of this work it was noticed that the faces were afterwards finished off by hand so as to ensure an absolutely perfect fit.

One item in the construction of the Napier engines which requires especially skilled fitting is the joint between cylinders and cylinder heads. No gasket is employed in this joint, so that the metal-to-metal fit must be absolutely perfect. After machining the two parts as accurately as possible they are finished off by hand, and it will be realised that this work is very exacting and that the smallest absence of contact will result in a leaky cylinder.

On the day of our visit to the Napier works we were fortunate enough to be present when the ungeared "Lion"

finished its 104 hours' run, to which reference was made in FLIGHT last week. It was fascinating to stand in the test house and watch the revolution indicator needle standing steadily at 2,200 r.p.m., knowing that this represented about 500 b.h.p. and that the engine had already been running for more than 100 hours. We were not present when the engine was stripped, but, judging from the way it ran right up to the last minute of its gruelling test, there seemed to be no reason to doubt that it was in other than perfect condition. The painstaking care in manufacture, of which we had seen so many illustrations during the day, found its justification in this test run of more than 100 hours, and it also answered the question "Why are aero engines so expensive?" It left us wondering, however, why aero engines are not more expensive.

# THE ROYAL AIR FORCE

London Gazette, October 21, 1924

## General Duties Branch

The following Pilot Officers are promoted to rank of Flying Officer with seniority of dates indicated in brackets:—V. Harris, July 14 (Jan. 14). R. H. S. Spaight, Oct. 21 (Oct. 21, 1923). The antedate of seniority of Flying Officer Spaight will not count for purposes of pay as a Flying Officer, nor for increments of pay. Pilot Officer R. H. Carter is promoted to the rank of Flying Officer; Sept. 20.

The following Pilot Officers on probation are confirmed in rank:—T. A. Hale-Munro; Aug. 28. J. M. Cohu, F. H. S. David, C. Feather, A. N. Francombe, V. G. H. Gee, M. W. Goldie, H. F. Luxmoore, A. L. Macmillan, A. W. B. McDonald, A. D. McDowall, A. W. G. Martin, W. V. R. Nicholl, H. M. G. Parker, G. B. M. Rhind, C. S. Staniland, N. A. West; Sept. 15. R. R. Bennett; Sept. 21.

The following Flying Officers are transferred to the Res. (Oct. 24):—Class A: O. T. Hazell and G. R. B. Smyth. Class B: R. Hall. Class C: V. F. R. Hill and E. M. Ling.

Pilot Officer G. L. Worthington resigns his perm. commn. (Oct. 22).

## Stores Branch

Flying Officer J. C. Brice is granted a perm. commn. for accountant duties in rank stated; Oct. 22. Flying Officer C. G. Bull resigns his short serv. commn.; Oct. 22.

## Medical Branch

A. Harvey, M.B., is granted a short serv. commn. as a Flying Officer with effect from, and with seny. of, Oct. 7; H. W. D. Mackenzie, M.B., is granted a short serv. commn. as a Flying Officer, with effect from, and seny. of, Oct. 1, and is secd. for duty at Royal Infirmary, Edinburgh.

## Reserve of Air Force Officers

A. G. Lambert is granted a commn. in Class B, Gen. Duties Branch, as a Flying Officer on probation; Oct. 21.

The following Pilot Officers are promoted to the rank of Flying Officers (Oct. 21):—R. N. Riddell, J. E. Whitehead, G. E. Muir, E. J. Wing, D. G. R. Lord, V. N. Dickinson, E. A. Burbidge, D. C. Evemy, W. Mullen, G. S. Fenwick, A. M. Verity, R. C. Knowles, N. J. Nock, W. Harmston, W. R. Bannister, K. Onyett, W. A. Hammerton, A. Cairnie, F. J. Letzer, R. R. H. Taylor, W. A. Foot, J. F. Greenwood, G. A. Milbank, A. J. Black, J. E. Taylor, A. Wren, W. A. Warwick, H. G. Eggar, P. G. Addie, H. V. Bullock, J. E. Hunt, F. Neale, R. R. Spencer, M.M., H. C. Biard, L. R. Robertson, H. Preston, M. B. Lacey, H. J. L. Jones, W. R. Parkhouse, D. M. David, C. T. S. Capel, D. L. Townsend, J. Craig, C. Bunch, T. E. W. Browne, H. B. Hampson, W. F. Jaggs, L. E. Headley, F. A. Ledgard, G. Burton, I. R. Taylor, R. W. Barton, G. Richardson, D. W. S. Ireland, R. T. Bark, G. G. Williams, J. C. Raine, M.B.E., L. E. Falla, D. C. Bain, J. R. Cox, G. T. Whitcombe, P. A. Cox, R. J. Hibberd, W. George, A. J. Brewin, C. M. Willy, J. F. Turpie, R. J. Weaver, R. W. Jackson, D. A. Watson, R. Reynolds, C. K. Carter, K. L. Graham, G. W. Smart, G. T. E. B. Dorman, C. E. F. Searle, T. W. Ashton, C. W. Daggett, W. M. Hiron, A. E. Betts, F. Allen, T. A. Jackson, W. Anderson, J. C. Edwards, E. A. Kemp, H. W. Frith, E. C. Brown, T. A. Priestley, C. W. Calder, W. A. Rollason, G. G. Matthews, V. Foster, E. D. Trask, A. Y. Paton, D.C.M., A. Higham, H. S. Basford, W. H. Herd, R. A. Seaton, T. W. Campbell.

Flying Officer W. Armstrong, A.F.C., is confirmed in rank; Oct. 15. Flight Lieut. H. B. Pett, M.C., is transferred from Class A to Class C; Oct. 21.

## ROYAL AIR FORCE INTELLIGENCE

### General Duties Branch

Wing Commander T. O'B. Hubbard, M.C., A.F.C., to No. 1 Group H.Q., Kidbrooke, for Tech. Staff duties on transfer to Home Estab.; 27.10.24.

Squadron Leaders: R. L. G. Marix, D.S.O., to R.A.F. Depot; 13.10.24. E. O. Grenfell, M.C., D.F.C., A.F.C., to No. 7 Sqdn., Bircham Newton; 20.10.24. C. H. Hayward to H.Q. Coastal Area; 27.10.24. G. S. Trevin, A.F.C., to R.A.F. Depot; 21.10.24. A.S.C.S. MacLaren, O.B.E., M.C., D.F.C., A.F.C., to Marine Aircraft Experimental Estab., Felixstowe; 23.10.24.

Flight Lieutenants: M. Moore, O.B.E., to Aeronautical Committee of Guarantee, Germany; 1.10.24. G. O. Venn, to No. 5 Sqdn., India; 3.10.24. W. Elliot, D.F.C., to Air Ministry; 13.10.24. L. J. St. G. Bayly, M.C., to Electrical and Wireless Sch., Flowerdown; 24.10.24. W. B. Everton to No. 1 Sch. of Tech. Training (Boys) Halton; 30.10.24. W. A. Coryton, M.V.O., D.F.C., to H.Q. Inland Area on transfer to Home Estab.; 21.10.24. A. McR. Moffatt to R.A.F. Depot; 1.11.24. P. Huskinson, M.C., to H.Q. Coastal Area; 20.10.24. J. S. Holloway to Station H.Q., Bircham Newton; 10.9.24. W. A. Skeate to No. 28 Sqdn., India; 1.10.24. W. M. Fry, M.C., to No. 7 Sqdn., Bircham Newton, instead of to Station H.Q., Bircham Newton, as previously notified, on transfer to Home Estab.; 10.9.24. G. H. Harrison, D.F.C., to R.A.F. Base Calshot; 3.11.24.

Flying Officers: W. J. Walsh to R.A.F. Depot on transfer to Home Estab.; 24.10.24. B. J. O'Connor Hanstock to Sch. of Tech. Training (Men), Manston; 8.10.24. W. J. M. Akerman, to remain at No. 4 Sqdn., S. Farnborough, instead of to Aeroplane and Armament Experimental Estab., No. 22 Sqdn., as previously notified; F. E. Nuttall to Aeroplane and Armament Experimental Estab., No. 22 Sqdn., Martlesham Heath; 17.10.24. A. R. Jones, to R.A.F. Depot; 10.11.24. H. E. Kirk, D.C.M., and E. A. Scales, to R.A.F. Depot, 4.11.24. F. O. Burnley to Elec. and Wireless Sch., Flowerdown;

27.10.24. J. W. Bell, D.S.M., and W. N. Lancaster, to Sch. of Tech. Training (Men), Manston; 24.10.24. J. de la P. B. Preston to No. 5 Armoured Car Co., Iraq; 7.7.24. A. E. Connolly to No. 45 Sqdn., Iraq, instead of to No. 84 Sqdn., as previously notified; 5.9.24. C. A. Hoy, M.C., to R.A.F. Depot; 1.11.24. W. E. Cowan to Elec. and Wireless Sch., Flowerdown; 27.10.24. A. Haines to No. 9 Sqdn., Manston; 9.10.24. R. Jones to No. 5 Sqdn., India; 15.10.24. F. H. H. Twelvtree to H.Q. Mediterranean, Malta; 8.10.24. S. T. Tipper to R.A.F. Base, Calshot; 29.10.24. L. J. Booth to R.A.F. Depot; 21.10.24. C. E. Stuart to No. 13 Sqdn., Andover, on transfer to Home Estab.; 2.11.24. O. C. Noel to R.A.F. Depot; 27.10.24. A. R. M. Brain to No. 24 Sqdn., Kenley; 31.10.24. R. Mundy-Cox to No. 58 Sqdn., Worthy Down; 31.10.24.

Pilot Officers: E. R. Newbigging to No. 5 Armoured Car Company, Iraq; 22.9.24. P. E. Nicholl, to Sch. of Balloon Training, Larkhill; 13.10.24. H. C. E. C. P. Dalrymple to No. 24 Sqdn., Kenley; 27.10.24. E. L. Batson-James to No. 56 Sqdn., Biggin Hill; 27.10.24. D. J. F. McMillan to No. 3 Sqdn., Upavon; 27.10.24. K. Maconochie to No. 17 Sqdn., Hawkinge; 27.10.24.

### Stores Branch

Wing Commander, H. J. Down (Accountant) to H.Q. Inland Area (Nov. 5). Squadron Leader, F. G. M. Williams, to No. 1 Group H.Q., Kidbrooke (Nov. 1). Flight Lieutenants: H. E. T. Crocker (Stores) to Aeroplane and Armament Experimental Estab., Martlesham Heath; 23.10.24. R. A. Young (Stores), to Station H.Q., Kenley; 29.10.24.

Flying Officers: R. G. D. Thomas (Accountant), to No. 208 Sqdn., Egypt; 19.9.24. R. W. L. Glenn (Accountant), to R.A.F. Depot, on transfer to Home Estab.; 11.10.24. R. W. L. Glenn (Accountant), to Central Flying Sch., Upavon; 10.11.24. C. E. Tidy (Stores), to H.Q., Cranwell; 30.10.24.

## CAMBRIDGE UNIVERSITY

We give below the programme of lectures, etc., of the above Society for the Michaelmas term, which commenced on October 10. The officers of the Society are:—President: Flight-Lieut. E. L. Howard-Williams, B.A., M.C., R.A.F. (Jesus). Hon. Secretary: C. W. Niel McGowan (Queens). Committee: Flight-Lieut. C. E. W. Lockyer, B.Sc., R.A.F. (Peterhouse), M. J. Berlyn (Trinity Hall), G. F. Lake (Caius), and A. L. Stillwell (Caius). Hon. Treasurer: Roy Lubbock, Esq. (Peterhouse).

October 29.—Maj.-Gen. the Rt. Hon. J. E. B. Seely, C.M.G., D.S.O., M.P.: "Aviation."

November 5.—Sqdn.-Ldr. J. A. G. de Courcy, M.C., R.A.F.: "Special Flying Facilities."

November 12.—G. S. Wilkinson, Esq. (chief designer of

## AERONAUTICAL SOCIETY

Napiers, Ltd.): "The Heart of a Lion" (with the cinematograph film of the Napier "Lion" engine).

November 19.—C. G. Grey, Esq. (editor of *The Aeroplane*): "Aircraft in the Next War."

November 26.—Lieut.-Comdr. S. E. Deacon, R.N.: "The Air Port of Croydon" (with the cinematograph film from Wembley).

December 3.—Exhibition at engineering laboratories.

December 6.—Visit to Messrs. Boulton and Paul, Ltd., aircraft manufacturers.

Date to be announced later.—Visit to Cardington to the airship R.33.

Date to be announced later.—Display of trick flying.

## SOCIETY OF MODEL AERONAUTICAL ENGINEERS (London Aero-Models Association).

### "Flight" Cup Competition

THE weight-lifting competition for the FLIGHT Challenge Cup was held on the Sudbury flying ground on Saturday, October 18. The weather conditions were ideal, and good flights were obtained.

The minimum weight of the models allowed was 10 oz., whilst the dead load carried had to be a quarter of the weight of the model (unloaded). The winning flight was made by Mr. S. C. Hersom (the previous holder of the Cup) with a duration of 26 secs., Mr. B. K. Johnson being second. Thus Mr. Hersom maintains his hold on the Cup for another year.

### Result of the S.M.A.E. Research Competition for Self-Righting Model Aeroplanes

MORE than twenty members of the S.M.A.E. assembled at Sudbury Hill on Saturday, October 18, for this Competition, the rules and conditions of which were published early in the season. Six models were eligible to compete, and all of these passed the test of gliding by hand launching before being hoisted up on the aerial specially designed and constructed for the purpose of releasing the models vertically downwards. Only one model recovered flying equilibrium without stalling afterwards. This was a Dunn type monoplane, constructed by Mr. B. K. Johnson. His machine got out of the vertical dive in approximately 10 times the length of the model, and then glided to earth steadily at a reasonably good angle. This performance was repeated at least a dozen times with exactly the same result each time.

Mr. B. K. Johnson, therefore, wins the first prize of two guineas, offered by the Research Committee of the above Society, for a model of an aeroplane which, having the requisite factor of safety cannot fall vertically to earth after stalling at a certain low altitude, which in this case represents about 10 times the length of the model.

Mr. L. G. Tucker's model was an ordinary fuselage monoplane, having balanced elevators, controlled by a pendulum device inside the fuselage. This was the only model which had an automatic stabilising device, and was untried before the competition. Mr. Tucker was unable to prevent the model stalling after the dive, but members present were of opinion this could be overcome by fitting slightly larger elevators for quicker recovery and some adjustment of the controlling gear to prevent over-elevation after regaining equilibrium. Messrs. Lansdown, Sherwen, Green, and Hersom all, unfortunately, killed their pilots several times over. The second and third prizes not being won are held over for a future competition.

Details of Mr. B. K. Johnson's model Dunn type monoplane, and of the releasing apparatus will be given at a future date.  
A. E. JONES, Hon. Sec.

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### Aero Golfing Society

THE Aero. Golfing Society held its Autumn Meeting at Moor Park, Rickmansworth, on October 23, when the following events were decided:—Autumn Challenge Cup (presented by Cellon, Ltd.). Result: Flight-Lieut. D. F. FitzGibbon, 80 less 3 = 77; H. Burroughes, 84 less 6 = 78; Sir Henry White Smith, 98 less 14 = 84. Bogey Four Ball Foursomes: Sir Henry White Smith and Maj. R. H. Mayo, 5 up; Capt. W. Aston and Lieut.-Com. H. E. Perrin, 4 up; P. Barry and Col. C. Jarrott, 2 up; Capt. L. V. Pearkes and Flight-Lieut. D. F. FitzGibbon, 2 up.

### A Bider Memorial

A MONUMENT was unveiled at Berne on October 25, to the Swiss airman, Oscar Bider, who achieved fame by his flights over the Swiss mountains in 1913, and who lost his life flying at Dübendorf on July 7, 1919.

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### SIDE-WIND

OFFICERS in the Royal Air Force are being very thoroughly catered for in regard to usual outfit and full-dress wear by Burch's, 401, Strand. This firm has just sent us along a revised price list, from which we gather they have studied and brought the R.A.F. requirements down to a fine art. A special offer is made to reserve officers, and any in this branch of the Service would do well, before going elsewhere, to visit Burch's. Included in this offer are the following:—Service jacket, Regulation breeches, Regulation service cap, and embroidered badge, shirt, collar and tie, R.A.F. puttees, and Decorations. Another of Burch's specialities comprises a full range of tropical outfits.

## PUBLICATIONS RECEIVED

Report No. A77. *Meting van der den door Metaalgaas Veroorzaakt drukval in een Windstroom.* No. A33.—Onderzoek van de drukverdeling op den romp van een vliegtuigmodel. No. A58.—Nomogram ter Bepaling van de correctie voor invalshoek en weerstand in verband met de eindige doorsnede van den windstroom bij het onderzoek van draagvlakmodellen. Rijks-Studiedienst voor de Luchtvaart, Amsterdam.

Department of Overseas Trade. *Report on the Commercial, Industrial and Economic Situation of China, in June, 1924.* By H. J. Brett. London: H.M. Stationery Office, Kingsway, W.C. Price 1s. 6d. net.

U.S. Department of Commerce. *Theory of Determination of Ultra-Radio Frequencies by Standing Waves on Wires.* By A. Hund. Scientific Papers of the Bureau of Standards, No. 491. U.S. Government Printing Office, Washington, D.C., U.S.A.

Bulletin No. 4, 1924. Section No. 1. School of Engineering Research, University of Toronto, Toronto, Canada.

Ministry of Agriculture and Fisheries. *Fishery Investigations. Series II. Vol. VII. No. 5. Report on the Possibilities of Aerial Spotting of Fish.* By A. C. Hardy. London: H.M. Stationery Office, Kingsway, W.C. 2. Price 1s. net.

Meteorological Office. *Professional Notes, Vol. III, No. 37. Pressure Type in Relation to Fog Frequency at Scilly during Summer Months.* By E. G. Bilham. London: H.M. Stationery Office, Kingsway, W.C. Price 6d. net.

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## AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

### APPLIED FOR IN 1923

Published October 30, 1924

- 20,354. DORNIER-METALLBAUTEN GES. and C. DORNIER. Metal girders for aircraft. (222,615.)  
27,224. V. C. RICHMOND and G. H. SCOTT. Girder work for hulls of rigid airships. (222,689.)

### APPLIED FOR IN 1924

Published October 30, 1924

- 5,335. G. FORNACA. Superfeed systems for i.c. engines. (222,757.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week.

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